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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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PEACOCK MYERS AND ADAMS P C
P O BOX 26927
ALBUQUERQUE, NM 871256927

EXAMINER

JACKSON, ANDRE K

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 10/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

my

Office Action Summary

Application No.

09/936,632

Applicant(s)

HEIDE ET AL.

Examiner

André K. Jackson

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the data processor coupling and three woven steel couplings must be shown or the features canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the

examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 7-20,22 and 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreau et al. in view of Zollingger et al. and in further view of Marvin et al.

Regarding claim 7, Moreau et al. disclose in the patent entitled "Multi-element ultrasonic probe for electronic scanning" a measuring head (4) and a reel (15). Zollingger et al. disclose in the patent entitled "Apparatus for inspecting piping" a cable (60), a measuring head (driver coil 28), a reel (spool 38) and where the measuring head (driver coil 28) and reel (spool 38) are each individually incorporated in carrier members (body modules 26) moveable through the pipes or tubes and which members are sequentially interconnected with flexible couplings (connection seals 51) shown in Figures 1,4. Moreau et al. do not disclose where the members are sequentially interconnected with flexible couplings having a smaller diameter than the diameter of the carrier member. However, Zollingger et al. disclose this feature in Figures 1,4. Therefore,

it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moreau et al. to include where the members are sequentially interconnected with flexible couplings having a smaller diameter than the diameter of the carrier member. By adding this feature the apparatus would be able to keep each component separate and free from possible interference such as the spool becoming dislodge and striking the measuring head if the components were placed in the same compartment. Moreau et al. disclose where the apparatus can negotiate small bends within the pipes or tubes (Column 3, lines 40-45; Column 6, lines 33-45). Moreau et al. do not disclose a 1D bend in the pipe. However, Marvin et al. disclose in the patent entitled "Furnace tube inspection apparatus" where an inspection apparatus can pass through 1D bends within the pipes or tubes (Column 1, lines 19-35; Column 4, lines 30-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moreau et al. to include where an inspection apparatus can pass through 1D bends within the pipes or tubes. By adding this feature the apparatus would be able to inspect conduits such as a furnace with tight bends.

Regarding claim 8, Moreau et al. disclose where the cable reel includes an axis of rotation substantially parallel to a direction of travel of the apparatus (Figure 1).

Regarding claim 9, Moreau et al. disclose a reel (15) for winding the cable on and off.

Regarding claim 10, Moreau et al. disclose a cable (11) that includes a data communications cable.

Regarding claim 11, Moreau et al. do not disclose a cable that is a glass fiber and a feed device for feeding the measuring head. However, Murakami et al. disclose a cable that is a glass fiber (108) and a feed device for feeding the measuring head (106). Therefore, it would have been obvious to modify Moreau et al. to include a cable that is a glass fiber and a feed device for feeding the measuring head since using optical fiber makes the apparatus lighter and the feed device is needed to provide energy to the measuring head.

Regarding claim 12, Moreau et al. do not disclose where the cable has a thickness of less than approximately 0.125 mm. However, it is considered a design choice and well within the purview of the skilled artisan to provide where the cable has a thickness of less than approximately 0.125 mm since this would allow the cable to travel around the bends within the pipe and not interfere with the movement of the apparatus.

Regarding claim 13, Moreau et al. do not disclose where the cable has a length of up to approximately 3 km. However, it is considered a design choice and well within the purview of the skilled artisan to have the

cable with a length of up to approximately 3 km depending on the length of the apparatus to be inspected.

Regarding claim 14, Moreau et al. disclose where the cable (11) supplies power to the apparatus.

Regarding claim 15, Moreau et al. disclose where the cable (11) is coupled to a data processor (20).

Regarding claim 16, Moreau et al. disclose where the data processor (20) is located outside the pipe or tube (Figure 1).

Regarding claim 17, Moreau et al. do not disclose where at least one carrier member has a power supply. However, Zollinger et al. disclose where the at least one carrier member has a power supply (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moreau et al. to include where at least one carrier member has a power supply. By adding this feature the apparatus would be able to inspect the pipes without relying on a wire to deliver power to the device from outside of the pipe.

Regarding claim 18, Moreau et al. do not disclose where the power supply has one or more batteries. However, Zollinger et al. disclose where the power supply has one or more batteries (Abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moreau et al. to include where the power supply has one or more batteries. By adding this feature the apparatus

would be able to inspect the pipes without relying on a wire to deliver power to the device from outside of the pipe.

Regarding claim 19, both Moreau et al. and Zollinger et al. disclose where electronics are incorporated individually in carrier members (Figure 10) and (Figure 1, Column 3, lines 34-48) respectively.

Regarding claim 20, Moreau et al. disclose where the electronics has an electronic control unit (86).

Regarding claim 22, Moreau et al. do not disclose where each of the coupling tubes is approximately 10 cm long. However, it is considered a design choice and well within the purview of the skilled artisan to have where each of the coupling tubes is approximately 10 cm long depending on the length of the apparatus to be inspected.

Regarding claim 24, Moreau et al. do not disclose where the at least one steel covering includes woven steel. However, it is considered a design choice and well within the purview of the skilled artisan to have where the at least one steel covering includes woven steel since this modification would allow the apparatus to have appropriate protection when moving through the pipes or tubes.

Regarding claim 25, Moreau et al. do not disclose where the coupling tubes has three steel coverings. However, it is considered a design choice and well within the purview of the skilled artisan to have where the coupling tubes has three steel coverings since this modification

would allow the apparatus to have appropriate protection when moving through the pipes or tubes.

Regarding claim 26, Moreau et al. do not explicitly disclose where the length of the tubes are chosen because of its flexural stiffness.

However, it is well within the purview of the skilled artisan to provide where the length of the tubes are chosen because of its flexural stiffness in order to proceed through the pipes without getting stuck and the ability to move through the pipes with ease.

Regarding claim 27, Moreau et al. do not disclose where the coupling tubes are sufficiently bendable to allow passage of the apparatus through one or more 1D bends in the pipe or tube. However, Marvin et al. disclose where the coupling tubes are sufficiently bendable to allow passage of the apparatus through one or more 1D bends in the pipe or tube (Column 4, lines 29-40). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moreau et al. to include where the coupling tubes are sufficiently bendable to allow passage of said apparatus through one or more 1D bends in the pipe or tube. By adding this feature the apparatus would not become stuck or hindered by the severe bends within the furnace.

Regarding claim 28, Moreau et al. do not disclose where the 1D bends includes 180-degree 1D bends. However, Marvin et al. disclose where the 1D bends includes 180-degree 1D bends (Column 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Moreau et al. to include where the 1D bends includes 180 degree 1D bends since most tubes line the inside wall of the firebox in this manner.

4. Claims 21 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moreau et al. in view of Zollinger et al. and Marvin et al. and further in view of Wernicke.

Regarding claim 21, neither Moreau et al., Zollinger et al. nor Marvin et al. disclose where the flexible couplings include hydraulic tubes. However, Wernicke discloses in the patent entitled "Spiral tractor apparatus and method" flexible couplings include hydraulic tubes. Therefore, it would have been obvious to one of ordinary skill in the art to modify Moreau et al. to include flexible couplings include hydraulic tubes since would provide the apparatus with a durable structure for the couplings.

Regarding claim 23, neither Moreau et al., Zollinger et al. Marvin et al. disclose where the couplings include a steel covering. However, Wernicke discloses where the couplings include a steel covering. Therefore, it would have been obvious to one of ordinary skill in the art to modify Moreau et al. to include the couplings include a steel covering since steel provides a durable structure.


5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

October 14, 2004


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800